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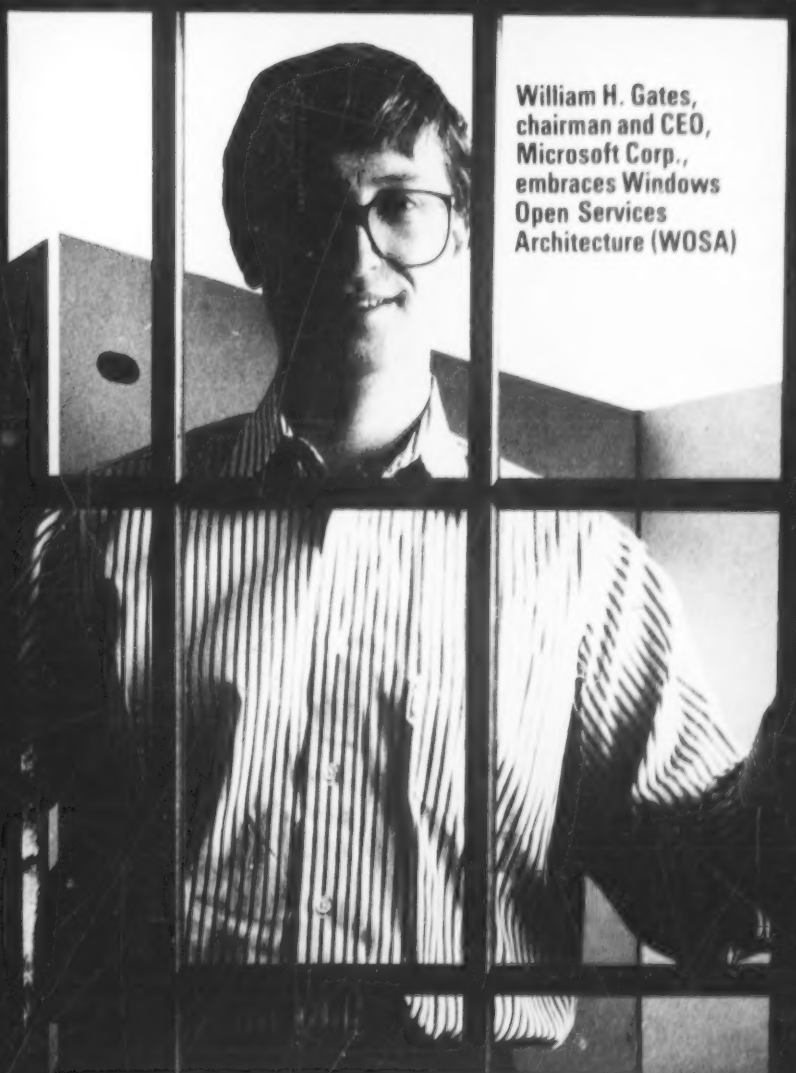
A CAHNERS PUBLICATION

DATAMATION

FOR CORPORATE COMPUTING PROFESSIONALS WORLDWIDE

JULY 15, 1992



William H. Gates, chairman and CEO, Microsoft Corp., embraces Windows Open Services Architecture (WOSA)

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What CIOs Need To Do Now

Heavier investments in IS strategies and tools will position CIOs to take advantage of better economic times.

BY KATHRYN HAYLEY, JENNIFER FORDONSKI AND BOB PUCKETT

During the past two years, many chief information officers opted for short-term solutions in response to the weak economy. Postponing or underinvesting in new technologies, giving inadequate attention to new application opportunities, delaying projects, reducing head counts and employing fewer contract programmers may have provided an immediate budget benefit, but in many cases these responses do little to ensure long-term success. These moves may even work against future success if they conflict with strategic goals or undermine an information systems department's ability to contribute to the company's recovery as the economy picks up.

Many organizations are not investing heavily in IS strategies that will position them to take advantage of better economic times, according to Deloitte & Touche's fourth annual survey of CIOs, "Leading Trends In Information Services." A combination of factors, including the recession and pressure from upper management, led many CIOs to pay particularly close attention to achieving the "lowest possible cost" part of their goal by sacrificing long-term opportunities to improve service and perhaps reduce overall IS costs.

Not all CIOs are failing to properly position their IS departments for the long term. CIOs who actively participate in their organizations' strategic plans are better positioned to take advantage of the economic recovery. They are viewed as key contributors to the organizations' financial performance and, as a result, receive larger budget increases, according to the 430 CIOs of large companies (with average revenue of $2 billion) who responded to the survey last year.

However, almost 40% of the CIOs responding to the survey don't participate in their corporations' strategic planning. These CIOs face double jeopardy: in the short term their departments' budgets will suffer and in the longer term they are more likely to lose their jobs. CIOs who actively participated in corporate strategic planning received 3.5% budget increases on average last year, whereas the less-involved CIOs had to suffer with miserly 1% budget increases.

A successful strategy for a CIO, in addition to full participation in the company's strategic-planning process, should include the adoption of new application development techniques, client/server architecture and open systems, and the revamping of business functions. Outsourcing is rightfully viewed with alarm by many CIOs as a threat to their jobs and their departments, but it can also be hazardous to the company's financial health over the long term if it renders the company incapable of quickly responding to competitive pressures.

Of the application development techniques currently being used, the most successful appears to be adherence to application development methodologies. Approximately 87% of the respondents said they used an application development methodology. On a scale of proven effectiveness from 1 to 10, CIOs rated application development methodologies at 6.1. In fact, such methodologies were rated as far more effective than a dozen other techniques or products (see table, "A Methodology Is More Effective Than A Product").

Advanced applications development tools such as computer-aided software engineering are viewed as high-value items by CIOs, but CIOs are missing an opportunity by failing to implement them broadly. One of the primary reasons cited for the lack of widespread

A Methodology Is More Effective Than A Product

Computer-aided software engineering (CASE) tools, PCs and other products are not as effective in improving the applications development process as an applications development methodology. Effectiveness of approaches was ranked on a descending scale from 10 to 1.

Technique	Effectiveness Ranking
Applications development methodology	6.1
Fourth-generation languages	5.9
Prototyping	5.8
Joint-application development sessions	5.7
PC-based development	4.6
CASE	2.8
Application generators	2.7
Accelerated development cycle	2.6
Object-oriented techniques	1.4

Source: Deloitte & Touche

adoption of CASE tools is cost, including the expenditure for new implementation standards and training. Only about half of the IS departments currently have at least one CASE tool, and only about one-third of the development staffs are using them. CIOs are satisfied with the capabilities of CASE tools, although they realize that their expectations had been too high.

CIOs now view CASE tools as being among several techniques that should be employed when money becomes available to invest in the software, personnel, training and additional CPU cycles necessary to use the tools effectively. About 60% of the development staffs will be using CASE tools within two years, according to the CIOs, as the economy and the companies' financial positions improve.

Many leading CIOs appear to be especially interested in future use of lower CASE tools, which aid in code generation and testing; the CIOs indicate that usage will more than double. The reason for the shift may be that cost savings are expected from applying lower CASE tools to traditionally expensive application development projects.

The client/server architecture should play an important role for CIOs trying to reduce cost and improve service. At present, however, few CIOs appear to be implementing the client/server and open systems approaches on a widespread basis. Only 8% of the respondents claimed to be currently using the distributed architecture, and only 4% were using an open-systems approach.

There's strong interest in the architecture, but CIOs say they lack the resources to implement it. Considering the cost savings expected from the client/server and open architecture approaches, any delay in implementation denies the IS department the opportunity to improve service and response times in the short term and save money in the long term. Since a system's cost per million instructions per second (MIPS) is substantially lower in a client/server environment, and the development tools are comparable with or superior to those used in a mainframe environment, CIOs adopting the client/server approach in some cases will find significant financial benefit.

The fact that only 26% of the respondents predict use of client/server architecture within two years indicates that many CIOs are taking a conservative stance. They may be suffering from the initial sticker shock of moving from a mainframe to a client/server environment. Or they may be waiting until the technologies become proven and there is a track record for determining which types of systems can and should be successfully implemented in this environment.

Outsourcing is rightfully viewed with alarm by many CIOs as a threat to their jobs. ■

In part, the low percentages of current or near-term adoption of the architecture are due to the large size of the respondents' organizations—the average IS budget for the respondents was $42 million. In these large shops, the high cost of converting mainframe applications to the new architectures precludes wholesale adoption.

Instead, the IS shops in these companies are evaluating the various alternatives and closely scrutinizing the appropriate application of these new technologies. Other reasons for caution include concern over data integrity, system availability and potential volume limitations. As a hedge for IS departments that aren't ready to plunge into the new architectures, one option that should be considered is developing new applications using CASE tools, so that IS can take advantage of client/server technology once it becomes more established without having to redevelop an application.

The lack of broad adoption of an open-systems approach is another indicator of CIO caution. Long-term contracts with vendors of proprietary hardware, corporate inertia, a shortage of proven technologies and a respect for the complexity of the transition period are all understandable concerns.

Although there's been a marked rise in interest in the past few years, only 17% of respondents say they expect to be in an open-systems environment within two years. Still, a majority of firms responding to the survey are moving toward an open-systems architecture. And a majority of that group, 57%, has established companywide standards, and 43% say the architecture is a divisional or departmental standard. Some 29% are implementing open systems standards for new applications development. Many CIOs are waiting until the effectiveness of open systems is better proved before completely committing themselves to adopting them.

Approximately 20% of the CIOs are outsourcing strategic functions such as applications development; almost 13% have contracted with third parties for disaster recovery. Selling a data center or transferring applications development and maintenance in a wholesale fashion to a third party without hands-on participation of internal technical

Outsourcing Lessons Learned

CIOs found that the actual financial benefits of outsourcing were less than they had anticipated. Benefits were ranked on a descending scale from 10 to 1.

Benefit	Anticipated Ranking	Actual Ranking
Head count reduction	6.0	5.2
Refocusing of IS resources on strategic systems	4.9	4.4
IS cost reductions	5.3	4.2
Improved control of IS spending	4.4	3.6
Avoidance of major IS expenditures	4.6	4.0
Improved quality/delivery of IS services	5.5	4.7
IS risk reduction	4.1	3.6
Strategic advantage over competition	2.5	1.9
Vendor sophistication and expertise	5.6	4.9

Source: Deloitte & Touche

staff may provide a short-term economic benefit, but experienced CIOs say there's a price to be paid.

Although outsourcing has been widely proclaimed to be a promising solution to the problem of uncontrolled costs, companies that have tried outsourcing typically have been disappointed with the results. The gap between anticipated and actual benefit is large. CIOs ranked the anticipated cost-reduction benefit for IS departments at 5.3, but ranked the actual benefit at 4.2.

In other words, the actual benefit of outsourcing was 19% less than the expectation (see table, "Outsourcing Lessons Learned"). The key to a successful outsourcing arrangement is outsourcing project-related work while maintaining direction and control internally or outsourcing in a wholesale fashion only those services that don't have strategic implications.

Even their approach to outsourcing reflects a financial focus that may not serve CIOs well in the long term. A lack of cost justification was the highest-ranking factor in CIOs' rejection of outsourcing, followed by control over quality of service or product. Control over corporate IS strategy was considered less significant than costs or quality.

While some CIOs are taking a go-slow approach to CASE tools, client/server architecture and open systems, they are wholeheartedly embracing business reengineering. A top-to-bottom review and revamping of a customer service program or distribution system, with IS taking part, is commonplace these days: CIOs reported that their departments were involved in an average of 1.6 reengineering projects. CIOs say they are comparatively well-satisfied with their reengineering programs, although results are below expectations. There's a 33% gap between the projects' expected and actual contributions to profit.

CIOs express high confidence in business reengineering. ■

Nevertheless, CIOs express high confidence in business reengineering and expect their programs to exceed expectations soon. Although the profit contributions to date may not match CIOs' plans, business-reengineering programs help CIOs contribute in concrete ways to the success of other departments within their firms. By helping other departments adopt technology to streamline operations, reduce staff and improve services, a CIO adds value to the company, making it "leaner and meaner," and enhances the image and value of the IS department. ■

Kathryn Hayley is a partner in the information technology practice of Deloitte & Touche in Chicago. Jennifer Fordonski and Bob Puckett are senior consultants in the information technology practice.

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Integrators Ride The Client/Server Wave

Most MIS managers have no problem recognizing the benefits of implementing client/server computing applications; but most also lack the time and in-house expertise to get client/server systems off the drawing board. That's creating a hot new growth market for third-party suppliers to provide client/server implementation services.

According to a recent study by the Business Research Group, two-thirds of companies implementing client/server systems will look for outside help to design and implement their systems. And when asked who will play the most important role in the development of such systems, respondents named systems integrators most often.

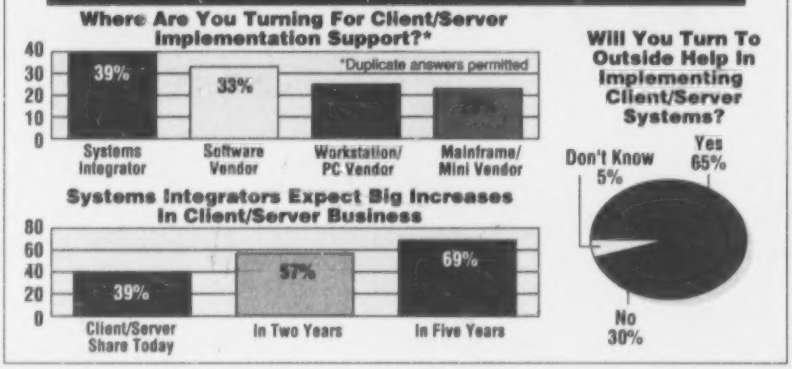
Systems integrators are pushing into the market for client/server implementation services at full throttle. Another recent poll by Business Research Group of 100 leading systems integrators shows that, on average, systems integrators expect their share of business activity related to client/server systems to grow from 39% to 69% over the next five years.

The development of client/server computing will continue to see tremendous growth in most markets throughout the 1990s and beyond. BRG sees the market for just the hardware associated with client/server implementations growing from $23 billion in 1991 to $38 billion in 1995.

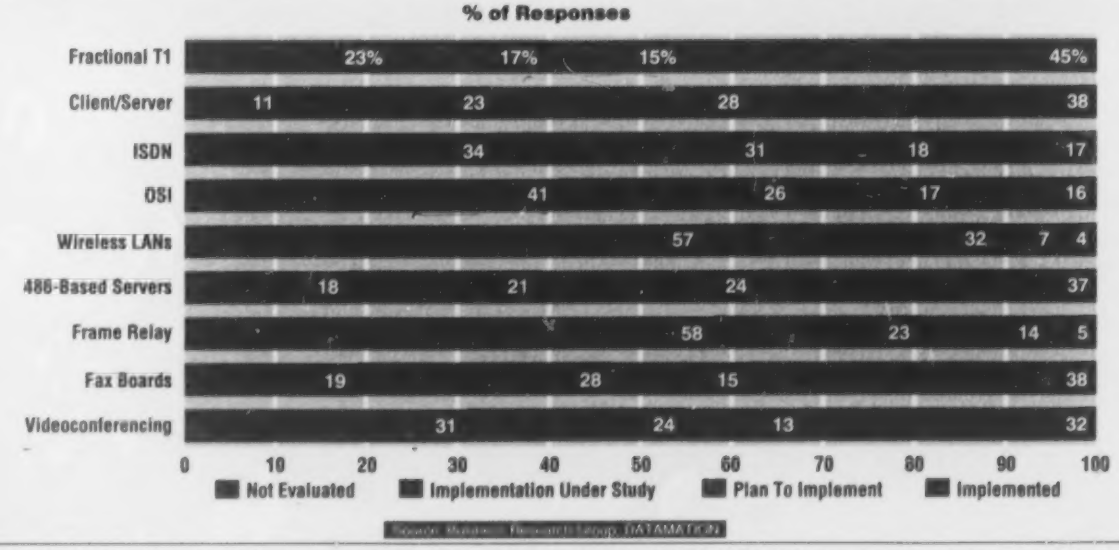
An exact definition of what constitutes client/server computing still eludes both the vendor and user communities, though most definitions include shared processing between a host server and a client workstation. But it's generally agreed that a goal for client/server computing is more effective integration of information resources over the enterprise network to improve the productivity business. ■

Warren Childs and Kathryn A. Tito, Business Research Group. For more information, call Maral Mahdasian at (617)-964-6204, send her a fax at (617)-558-4402 or write to her at the Business Research Group, 275 Washington Street, Newton, MA 02158.

MIS On Client/Server: "Help!"



DATAMATION's Technology Implementation Index: Networks/Communications


% of Responses
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486-Based Servers 18 21 24 37
Frame Relay 58 23 14 5
Fax Boards 19 28 15 38
Videoconferencing 31 24 13 32
0 10 20 30 40 50 60 70 80 90 100
Not Evaluated
Implementation Under Study
Plan To Implement
Implemented

■ DATAMATION each month surveys a select group of its readers–the DATAMATION Technology Panel–to investigate the implementation of new technologies by key user organizations.

Software Skipped Recession Again

When it comes to economic downturns, rule No. 1 is: "Everybody always gets hit." Maybe not all at the same time but, generally speaking, every sector of the economy really does come under pressure at one phase or another of the business cycle's dip.

Not so for the U.S. software industry, which rode high and dry during the last two years. Truth is, software remains one of the economy's fastest growing sectors.

Just listen to this. Data from the U.S. Commerce Department and from the Framingham, Mass.-based market research house International Data Corp. show that packaged software sales grew at nearly four times the rate of the Gross National Product last year—up 13.4% to $20.3 billion.

IDC forecasts that software sales will rise by another 14.3% in 1992 and will average 13.9% annual growth between 1991 and 1995, bringing the total sales to $34.2 billion.

Recent estimates of software sales by the Software Publishers Association show that North American microcomputer software sales nearly tripled between 1987 and 1991, surging from $1.97 billion in 1987 to $5.71 billion in 1991. Sales climbed 26.2% in 1990 and 24.6% in 1991.

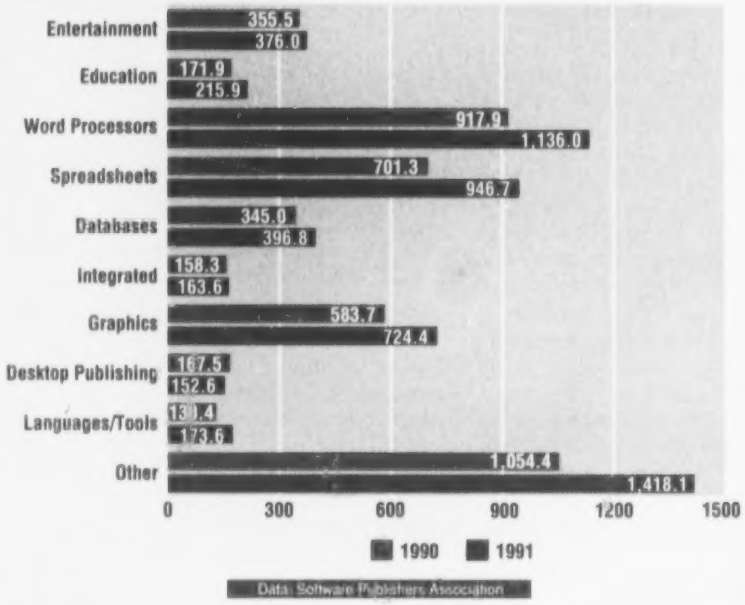
The biggest winners included spreadsheet software (up by 35%) and languages/application development tools (33.1%). Sales of software for the Apple Mac jumped by 37%; software sales for MS-DOS-based PCs jumped 25.7%.

Sales of Windows applications skyrocketed by an astounding 228% during a single 12-month period between the fourth quarter of 1990 and the fourth quarter of 1991. Sales of Windows applications accounted for two-thirds of the total growth in microcomputer software sales in 1991. ■

By Madeline Franchi, Cahners Economics. For more information on Cahners Economics's forecasting services contact Dan Buchan at (617)-630-2105.

Software: Looooking Goooood!!!

North American microcomputer software sales ($ millions)



Data: Software Publishers Association

The Economy At A Glance

U.S. Economy: Macroeconomic And Industrial Indicators

	Actual			Forecast	
	Q4/91	Q1/92	1991	1992	1993
Gross National Product	0.4	2.0	-0.7	2.0	2.7
Business Investment In Equipment	-1.6	1.6	-3.4	1.9	4.7
Government Spending	-5.4	2.8	0.9	-2.3	-3.7
Consumer Spending	0.0	5.3	-0.1	2.6	2.8
Exports	9.7	1.0	6.4	5.8	7.6
Imports	2.1	-1.5	0.3	4.6	3.7

All calculations are % change in 1987 dollars; quarterly figures are seasonally adjusted annual rates.

	March 1992	Feb. 1992	% Change 3/92-2/92	March 1991	% Change 1991-1992
Manufacturing Production (1)					
Process Industries Total	108.6	107.9	0.6	103.1	5.3
Chemicals	114.3	113.3	0.9	108.2	5.6
Petroleum	107.3	106.9	0.4	108.5	-1.1
OEM Total	109.1	108.9	0.2	107.6	1.4
Computers & Peripherals	163.9	162.4	0.9	155.1	5.7
Communication Equipment	110.6	110.4	0.2	109.9	0.6
Transportation Equipment	97.1	96.9	0.2	95.0	2.2
Services Employment (2)					
Finance, Insurance, Real Estate	6.662	6.645	0.3	6.685	-0.3
Health Care	8.486	8.457	0.3	8.105	4.7
Computer & Data Processing	.864	.863	0.2	.817	5.7
Transportation/Utilities	5.729	5.727	0.0	5.764	-0.6
Retail Trade	18.836	18.794	0.2	18.990	-0.8
Wholesale Trade	5.947	5.940	0.1	6.063	-1.9
Government	18.939	18.815	0.7	18.774	0.9

(1) Index 1987 = 100, seasonally adjusted
(2) Millions of persons, not seasonally adjusted

Source: Commerce Dept. and Cahners Economics

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